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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/515,101	02/29/2000	Jin-gyo Seo	1293.1093/MDS	1625
21171	7590	02/19/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			PATEL, GAUTAM	
			ART UNIT	PAPER NUMBER
			2655	/6

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/515,101	SEO, JIN-GYO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Gautam R. Patel	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 06 January 2004.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1,5-8,10-34,38-52 and 56 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 25,28-30,43-47 and 56 is/are allowed.  
 6) Claim(s) 1, 5-8, 10-24, 26-27, 31-34, 38-42 and 48-52 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_

5)  Notice of Informal Patent Application (PTO-152)  
 6)  Other: \_\_\_\_\_

#1b

## DETAILED ACTION

1. Claims 1, 5-8, 9-34, 38-52 and 56 are pending for the examination.

## RCE STATUS

2. The request filed on 1-6-04 for Request for continued Examination (RCE) under 37 CFR 1.114 based on parent Application is acceptable and a RCE has been established. An action on the RCE follows.

## Claim Rejections - 35 U.S.C. § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 23, 38-40, 49 and 51 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ogasawara, US. patent 5,721,579 (hereafter Ogasawara).

As to claim 1, Ogasawara discloses the invention as claimed [see Figs. 1-3, and 8-10], including generating a periodic synchronization signal and controlling the power of the laser diode comprising the steps of:

generating a periodic synchronization signal [fig. 1, unblanking interruption] [col. 9, lines 16-50]; and

controlling the power of the laser diode in synchronism with the synchronization signal by:

sampling the difference between the level of the laser light and the reference level [fig. 1, Vt] to produce a sampled difference,

calculating an average [fig. 1, unit 64] of a predetermined number [4 points] of the sampled difference to produce an average compared result [fig. 1, unit 64], and

controlling the power level of the laser diode according to the average compared result [col. 9, line 6 to 65].

NOTE: Figures 1, 8 and 10 has same elements and are part of the same embodiment.

4. As to claim 23, Ogasawara discloses:

Generating the synchronization signal selectively in accordance with a sub automatic power control (APC) mode, an average APC mode and a sub-average APC mode for the disc [col. 2, lines 16-59 and col. 3, lines 11-31].

NOTE: Ogasawara does not use words sub-average APC etc. however the synchronization signal goes to block 62 which judges these different modes and outputs signal accordingly, unit 47 [fig. 8] helps do this things also.

5. As to claim 38, it is an apparatus claim corresponding to claim 1 and it is therefore rejected for the same reasons set forth in the rejection of claim 1, supra.

6. As to claim 39, Ogasawara discloses:

a detector [fig. 8, unit 42] which detects the light reflected from the disc, to generate a detected power level of the laser diode;

power signal circuit [fig. 1 & 8, unit 44] which generates a power signal in accordance with the detected power level; and

an automatic power controller [fig. 1, unit 11, ALPC] which latches the power signal in synchronism with the synchronization signal, to generate the control signal [col. 2, lines 16-59 and col. 3, lines 11-31].

7. As to claim 40, Ogasawara discloses:

a comparator [fig. 1, unit 44] which compares the detected power level of the laser diode with a reference level [ $V_t$ ]; and

an up/down counter [fig. 8, unit 46] which up/down counts according to the output of the comparator to determine a counted result, wherein the counted result is input as

the power signal to the automatic power controller [col. 2, lines 16-59 and col. 3, lines 11-31].

8. As to claims 49 & 51 Ogasawara discloses:
  - sampling the counted result;
  - averaging a predetermined number of the sampled counted results to determine an average value; and
  - latching the average value in accordance with the synchronization signal, to determine the latched power signal [col. 2, lines 16-59 and col. 3, lines 11-31].

***Claim Rejections - 35 U.S.C. § 103***

9. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-8, 10-14, 24, 26, 31, 33 and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogasawara as applied to claims 1, 23, 38-40, 49 and 51 above and in view of Nagano, US. patent 6,222,815 (hereafter Nagano).

As to claim 7, Ogasawara discloses all of the above elements including details of the controlling power of the semiconductor laser diode. Ogasawara does not specifically disclose well known application of these laser diode power control being used in another applications such as CD and DVD and that synchronization signal is obtained by dividing the clock signal. However, it is well known in the art that CD and DVD inherently has laser diodes and power inherently need to be controlled for these disk control circuits to function. Also Nagano clearly discloses:

the disc is a digital versatile disc (DVD) [col. 1, lines 7-17], and the synchronization signal is obtained by dividing a clock signal required to drive the DVD by a ratio [ratio of 3T to 11T] [col. 8, 33-56].

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NOTE: Nagano discloses his power control system can work with DVD and also with write once or read only memory [ROM] techniques such as [CD-R] [CD-R is read only memory]. Therefore by definition his system can also inherently work with DVD-ROM.

Both Ogasawara and Nagano are interested in controlling the laser power in most efficient way in most efficient way. Both discloses synchronization signals, comparators and details of APC processing

Therefore, it would have been obvious to provide the system of Ogasawara with field of use and associated details of the disc layout as taught by Nagano. The application or use of this field of use for power control of laser diode as taught by Nagano would have been obvious, because the power control works and performs the same function in the same way as the laser power control circuit of Ogasawara and is an equivalent element. One of ordinary skill in the art would have recognized that the power control circuit of Ogasawara was an equivalent and an obvious alternative to laser power control circuit of Nagano and it can be replaced by it.

NOTE: Nagano discloses his power control system can work with DVD and also with write once or read only memory [ROM] techniques such as [CD-R] [CD-R is read only memory]. Also Aoki discloses that his system works with CD and ROM disk. Therefore by definition his system can also inherently work with DVD-ROM.

10. As to claim 8, Nagano discloses:

varying the division ratio [col. 3, line 53 to col. 4, line 29]. From 1 to 11 to 3 to 11.

11. As to claim 10, Nagano discloses:

the synchronization signal is obtained by dividing a clock signal required to drive the disc by a ratio [ratio of 11 to 1] [col. 1, lines 45-59].

12. As to claim 11, Nagano discloses:

varying the division ratio [col. 1, lines 45-59]. As 1 to 11 to 3 to 11.

13. As to claim 12, Ogasawara discloses:

a photo diode [fig. 8, unit 42] which receives the laser light to generate a current signal corresponding to a level of power of the reflected laser light [col. 4, lines 33-47];

a comparator [fig. 1 & 8, unit 44] which outputs an output voltage corresponding to the current signal from the photo diode compares the output voltage with a reference voltage [fig. 1,  $V_t$ ] and outputs a binary decision signal [fig. 1, signal S44] which indicates which of the output voltage and the reference voltage is higher [col. 1, line 66 to col. 2, line 15 and col. 9 lines 6-65].

an up/down counter [fig. 8, unit 46] which up/down counts the binary decision signal in accordance with the comparison result of the comparator to generate a count result [col. 2, lines 16-37];

a laser diode driver [fig. 8, unit 48] which controls a level of the power of the laser diode according to the count result of the up/down counter [col. 2, lines 16-37]; and

an automatic power controller (APC) [fig. 1, unit 65] which controls an automatic power control of the laser diode, the APC controller being interposed between the up/down counter and the laser diode driver, the APC controller latching the count result of the up/down counter in synchronism with a periodic synchronization signal [fig. 1, unblanking interruption], and outputting the latch result to the laser diode driver [col. 2, lines 16-48].

Ogasawara discloses all of the above elements including details of the controlling power of the semiconductor laser diode. Ogasawara does not specifically disclose well known fact that that these laser diode power control circuit can be being used in another type of applications such as CD and DVD read/write, erase control and signals to monitor diode can be provided from the reflection from the disc to the extent claimed. However, it is well known in the art that CD and DVD inherently has laser diodes and power inherently needs to be controlled for these disk control circuits to function properly. Also where the signal comes from to the detect diode for adjusting power does not change the operation of the power control the laser diode. Also Nagano clearly discloses:

the disc is a digital versatile disc (DVD) [col. 1, lines 7-17].

NOTE: Nagano discloses his power control system can work with DVD and also with write once or read only memory [ROM] techniques such as [CD-R] [CD-R is read only memory]. Therefore by definition his system can also inherently work with DVD-ROM.

Both Ogasawara and Nagano are interested in controlling the laser power in most efficient way in most efficient way. Both discloses synchronization signals, comparators and details of APC processing

Therefore, it would have been obvious to provide the system of Ogasawara with field of use and associated details of the disc layout as taught by Nagano. The application or use of this field of use for power control of laser diode as taught by Nagano would have been obvious, because the power control works and performs the same function in the same way as the laser power control circuit of Ogasawara and is an equivalent element. One of ordinary skill in the art would have recognized that the power control circuit of Ogasawara was an equivalent and an obvious alternative to laser power control circuit of Nagano and it can be replaced by it and can be used on the disc.

14. As to claim 13, Ogasawara discloses:

the synchronization signal has a predetermined enable interval [fig. 9] provides this], and the APC controller latches the counted result from the up/down counter at an end of the enable interval [col. 2, line 60 to col. 3, line 10].

15. As to claim 14, Ogasawara discloses:

the APC controller samples the counted result from the up/down counter during the enable interval, and latches an average [fig. 1, unit 4] of a predetermined number [averaging 4 points] of the sampled counted results [col. 9, lines 6-65].

16. As to claims 24 and 42, Nagano discloses:

adjusting the reference level based upon a read mode, a record mode and an erase mode for the disc [col. 3, line 53 to col. 4, line 29].

NOTE: read mode record mode and erase mode are inherently present in these kind of power control operations on CD and/or DVD disc, and Nagano system is applicable to these kind of discs [col. 1, lines 6-10]

17. As to claim 26, Ogasawara discloses:

up/down counting [fig. 8, unit 46] according to the compared result to determine a counted result;

latching the counted result in accordance with the synchronization signal to determine a latched power signal; and

wherein the controlling the power of the laser diode in accordance with the average compared result further comprises controlling the power of the laser diode in accordance with the latched power signal [col. 2, lines 16-59 and col. 3, lines 11-31].

18. As to claims 31 and 33, Ogasawara discloses:

sampling the counted result;

averaging [fig. 1, unit 64] a predetermined number [four] of the sampled counted results to determine an average value; and

latching the average value in accordance with the synchronization signal, to determine the latched power signal [col. 2, lines 16-59 and col. 3, lines 11-31].

19. Claims 5-6, 15-22, 27, 32, 34, 41, 48, 50, and 52 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogasawara and Nagano as applied to claims 1 and 7-8, 10-14, 24, 26, 31, 33, 38-40, 42, 49 and 51 above and further in view of Aoki, US. patent 5,414,692 (hereafter Aoki).

As to claim 5, combination of Ogasawara and Nagano discloses all of the above steps including light being reflected from these sectors and power being control from these reflections with help of synchronization signal. Nagano does not specifically disclose well known details of the sector format, specifically areas like mirror and gap. However, it is well known in the art that disc have areas like mirror and gap inherently

present for proper operation of the disc. Aoki clearly discloses these are well known concepts in the art [see fig. 4; Aoki]. Aoki discloses:

the disc is a (CD-ROM) [col. 1, lines 5-12], and the synchronization signal is a mirror signal indicating a mirror area of the CD-ROM [col. 1, lines 29-53]. Both Nagano and Aoki are interested in controlling the laser power in most efficient way from the reflection of the surface. Both Nagano and Aoki discloses optical recording medium with reflective surfaces. Both are taking these signals to control the power.

Therefore, it would have been obvious to provide the system of Nagano with details of the disc layout and associated details as taught by Aoki. The application or use of these layout details as taught by Aoki would have been obvious, because the layout of the disc performs the same function in the same way as the layout of Nagano and is an equivalent element. One of ordinary skill in the art would have recognized that the disc layout of Aoki was an equivalent and an obvious alternative to disc layout of Nagano.

NOTE: Nagano discloses his power control system can work with DVD and also with write once or read only memory [ROM] techniques such as [CD-R] [CD-R is read only memory]. Also Aoki discloses that his system works with CD and ROM disk. Therefore by definition his system can also inherently work with DVD-ROM.

20. As to claim 6, Aoki discloses:

the disc is a digital versatile disc-read only memory (DVD-ROM), and the synchronization signal is a gap signal indicating a gap area of the DVD-ROM [col. 1, lines 29-53].

21. As to claims 15-21, they are system claims corresponding to claims 5-9 and 7-8 respectively and they are therefore rejected for the same reasons set forth in the rejection of claims 5-9 and 7-8 respectively, supra.

22. As to claim 22, it is rejected for the same reasons set forth in the rejection of claim 5, supra. NOTE: non-effective area is mirror area.

23. As to claims 27, 32, 34, 41, 48, 50, and 52 they are rejected for the same reasons set forth in the rejection of claims 5 and 8, supra.

Ogasawara, Nagano, and Aoki were cited as prior art references in paper no. 10, mailed 3-3-03.

24. Applicant's arguments with respect to claims 1, 5-8, 10-24, 26-27, 31-34, 38-42 and 48-52 have been considered but are moot in view of the new grounds of rejection.

#### **ALLOWABLE SUBJECT MATTER**

25. Claim 25, 28-30, 43-47 and 56 are allowed over the prior art of record.

NOTE: Claims 25, 28-30, 43-47, and 56 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method which includes five steps which includes "adjusting the reference level to five different values for five different and distinct modes". It is noted that the closest prior art, Nagano (US 6,222,815) shows a similar apparatus which performs these steps and gives a reference voltage and calculates an average of a predetermined number of sampled difference to produce an average result . And Ogasawara et al., (US 6,081,289) also shows averaging four values. However Nagano and/or Ogasawara fails to disclose five different reference voltage values for five different modes and adjusting power accordingly as disclosed in claims 25, Similarly "five different up/down counters latching five different values and associated details" are not disclosed by either references, as disclosed in claims 28-30. Similarly "five latches latching five different values and a multiplexer outputting second through fifth value and two comparators" are not disclosed as claimed in claims 43-44 and 56. Similarly claims 45-47 are allowed for the same reasons as claims 28-30 above.

#### **Contact Information**

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.



Gautam R. Patel  
Primary Examiner  
Group Art Unit 2655

February 18, 2004